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GEL TO PROTECT THE GASTRIC MUCOSA

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This invention pertains to a gel with a protective effect on the gastric mucosa and antidote against incorporation of radionuclides.

Sodium alginate is the sodium salt of alginic acid, a plant-based polyglucide which is widespread in marine brown algae.

The use of sodium alginate in combination with glucose as a perfusable solution is well known. Sodium alginate increases the production of antibodies and reduces the coagulation time of the blood. It is also known that 6% alginate gels can be used in ophthalmology. The hydrogel of sodium alginate is well tolerated by the skin and has no irritating action. The regression of erythema and ulcerations has been observed, along with shortening of the epithelialization time after the use of sodium alginate hydrogel-based ointments.

The action of aluminum phosphate gel is well known; since it is a stable colloid solution, it presents antacid properties, reducing the gastric acidity to normal limits (without the danger of alkalinization), and at the same time it has greater power for absorbing bacteria, viruses, endogenous toxins, and gases resulting from pathological fermentation or intestinal putrefaction.

It is known that internal radioactive contamination is one of the most serious biological hazards in the nuclear age, both as an accident causing occupational disease in workers in nuclear units using open sources, as well as radioactive contamination of the environment resulting from nuclear attack. Since decorporation (removal from the body of radionuclides which have already penetrated) is at present virtually impossible, the only solution is to prevent the penetration of these radionuclides into the blood.

This invention broadens the range of drugs which protect the gastric mucosa by creating a product in the form of an easy-to-use gel which contains 3-7% sodium alginate, 8-15% aluminum phosphate, 0.3-1% Weegum, 5-10% pharmaceutical glycerin, 0.5-1.5% Nipagin-Nipasol as a preservative, 0.5-1.5% ethyl alcohol, 0.2-0.5% sodium cyclamate as a sweetener, and food flavorings such as mint oil, pistachio oil, or pineapple flavoring.

Below we give three examples of the embodiment of the invention.

Example 1

The composition of the protective gel according to the invention is:

-5% Sodium alginate gel	70.0 g
-Aluminum phosphate gel (10-15%)	10.0 g
-5% Weegum gel	10.0 g
-Pharmaceutical glycerin	5.0
-Nipagin	0.10 g
-Nipasol	0.05 g

-Sodium cyclamate	0.02 g
-Pharmaceutical ethyl alcohol	1.0 g
-Flavor	0.02 g
-Distilled water to make	100.0 g

The sodium alginate gel is prepared by presalting the sodium alginate over water heated to 40-45°C, and allowing it to stand for 24 h, because of the sodium alginate's substantial capacity to absorb water. After 24 h, it is homogenized.

The aluminum phosphate gel is dispersed by trituration with glycerin. The Weegum gel and sodium alginate gel are added. This is homogenized, and then the alcohol solution of Nipagin and Nipasol, sodium cyclamate dissolved in distilled water, and mint oil is added.

After it is homogenized and completed to 100 g, the product is packaged in varnished metal tubes.

The product can be administered as is or diluted with water. It can be administered when pain occurs, or as a gastric dressing, 0.5 h before meals. In the case of ingestion of toxic or caustic substances, after gastric lavage, or when it is contraindicated, large quantities of gel can be administered, which will act as an absorbent, a buffer, and protective solution. In the case of radioactive contamination, the gel should be administered as soon as possible (up to 30 min) after contamination.

Example 2

The composition of the protective gel according to the invention is:

-5% Sodium alginate gel	73.0 g
-Aluminum phosphate gel, 10-15%	10.0 g
-5% Weegum gel	10.0 g
-Pharmaceutical glycerin	5.0 g
-Nipagin	0.10 g
-Nipasol	0.05 g
-Pharmaceutical ethyl alcohol	1.00 g
-Sodium cyclamate	0.04 g
-Distilled water	0.50 g
-Pistachio flavor	0.01 g
5% Sodium alginate gel to make	100.0 g

To prepare the gel, we proceed as in Example 1, except that it is completed to 100 g with sodium alginate gel.

Example 3

The composition of the protective gel according to the invention is:

-5% Sodium alginate gel	72.0 g
-Aluminum phosphate gel, 10-15%	10.0 g
-5% Weegum gel	10.0 g
-Pharmaceutical glycerin	5.0 g
-Nipagin	0.10 g
-Nipasol	0.05 g
-Pharmaceutical ethyl alcohol	1.0 g

-Sodium cyclamate	0.04 g
-Distilled water	0.50 g
-Pineapple flavor	0.01 g
-5% Sodium alginate gel to make	100.0 g

The gel is prepared as in Example 2.

The protective gel according to the invention has the following advantages:

-As an antidote, taken even 20 min after radioactive contamination, it impedes 90% of the incorporation of the biologically hazardous principal radionuclides;

-It has a greater capacity to adhere to the gastric and intestinal mucosa, which makes it one of the best protective dressings;

-It does not interfere with the normal conditions of digestion, and it does not cause rebound hydrochloric acid secretion;

-It is not affected by digestive enzymes, and it offers antiseptic protection to the gastric mucosa for 2-3 h;

-It is well tolerated by the body and has no undesirable side effects or contraindications; it can be administered even in cases of acute hemorrhage or intoxication with toxic and caustic agents.

Claim

Gel for protection of the gastric mucosa and an antidote to radioactive contamination, characterized in that it comprises 3-7% sodium alginate in gel form, 8-15% aluminum phosphate gel,

0.3-1% Weegum, 5-10% glycerin, 0.5-1% Nipagin-Nipasol, 0.5-1% pharmaceutical ethyl alcohol, 0.02-0.5% sodium cyclamate as a sweetener, and food flavors such as mint oil, pistachio oil, and pineapple flavor.

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